

**PATENT**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant:** Hitoshi Kanazawa

**Examiner:** unassigned

**Serial No.:** unassigned

**Art Unit:** unassigned

**Filed:** herewith

**Docket:** 14840

**For:** METHOD OF MODIFYING POLYMERIC  
MATERIAL AND USE THEREOF

**Dated:** August 27, 2001

Assistant Commissioner for Patents  
Washington, DC 20231

**PRELIMINARY AMENDMENT**

Sir:

In connection with the filing of the above-described application, kindly enter  
the following preliminary amendments.

**AMENDMENTS**

**IN THE CLAIMS**

Please cancel ☒ Claims 1-27.

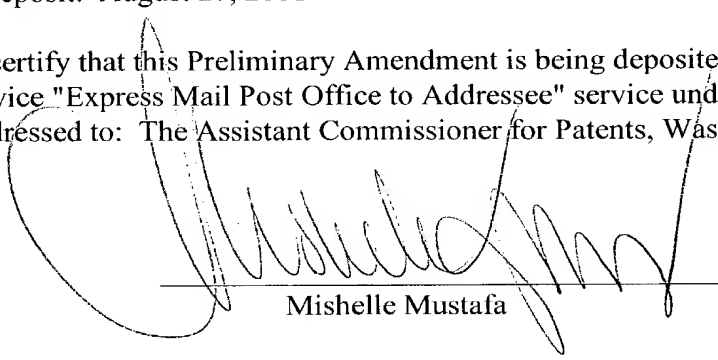
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§1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington,  
D.C. 20231.

Dated: August 27, 2001

  
Mishelle Mustafa

Please add new Claims 28-59.

--28. A method of modifying a polymeric material comprising the steps of (1) an activation-treatment and (2) a hydrophilic polymer-treatment.

29. The method of modifying a polymeric material according to claim 28 further comprising the step (3) of monomer grafting.

30. The method of modifying a polymeric material according to claim 28, further comprising the step of a solvent-treatment prior to step (1).

31. The method of modifying a polymeric material according to claim 30, further comprising the step (3) of monomer grafting.

32. The method according to claim 28, wherein said polymeric material is a homopolymer or copolymer of one or more compounds selected from the group consisting of: olefins, vinyl compounds except olefins, vinylidene compounds and other compounds having carbon-carbon double bonds; polyesters, polyamides, polyimides, polyurethanes, polybenzoates, poly(benzoxazole)s, poly(benzthiazole)s, poly-(*p*-phenylene benzbisoxazole)s, poly-(*p*-phenylene benzbis-thiazole)s, poly(alkyl-*p*-hydroxybenzoate)s, poly(benzimidazole)s, carbon fiber materials, polyphenols, cellulose acetate, regenerated cellulose, vinylon, polychlor, casein, wool, silk and hemp (or ramie, jute).

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35. The method according to claim 28, wherein said hydrophilic polymer is at least one member selected from the group consisting of polyvinyl alcohol, carboxymethylcellulose, polyhydroxy ethylmethacrylate, poly- $\alpha$ -hydroxy vinylalcohol, polyacrylic acid, polyvinyl pyrrolidone, polyalkylene glycols, starche, silk fibroin, sericin, agar, gelatin, egg white and sodium arginate.

37. The method according to claim 31, wherein said monomer is a compound having a carbon-carbon double bond.

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38. The method according to claim 36, wherein said monomer is at least one kind of monomer or a mixture of monomers selected from the following monomers; acrylic acid, methacrylic acid, vinyl acetate, 2-butene acid, ethylene sulfonic acid, hydroxyalkyl acrylate, hydroxyalkyl methacrylate, acryl amide, vinyl pyridine, vinyl pyrrolidone, vinyl carbazole, maleic anhydride and pyromellitic dianhydride.

39. The method according to claim 37, wherein said monomer is at least one kind of monomer or a mixture of monomers selected from the following monomers; acrylic acid, methacrylic acid, vinyl acetate, 2-butene acid, ethylene sulfonic acid, hydroxyalkyl acrylate, hydroxyalkyl methacrylate, acryl amide, vinyl pyridine, vinyl pyrrolidone, vinyl carbazole, maleic anhydride and pyromellitic dianhydride.

40. The method according to claim 28, wherein the step of a hydrophilic polymer-treatment is carried out in the presence of catalysts or initiators.

41. The method according to claim 29, wherein the step of monomer grafting is carried out in the presence of catalysts or initiators.

42. The method according to claim 29, wherein said step of monomer grafting is carried out by any one of or both of the following two methods: (1) heating in the presence of catalysts or initiators and (2) UV irradiation in the presence or absence of catalysts, initiators or photo-sensitizers.

43. The method according to claim 31, wherein said step of monomer grafting is carried out by any one of or both of the following two methods: (1) heating in the presence of catalysts or initiators and (2) UV irradiation in the presence or absence of catalysts, initiators or photo-sensitizers.

44. The method according to claim 40, wherein said initiators are at least one compound selected from the following compounds: peroxides, cerium ammonium nitrate (IV) and persulfates.

45. The method according to claim 41, wherein said initiators are at least one compound selected from the following compounds: peroxides, cerium ammonium nitrate (IV) and persulfates.

46. An improved polymeric material obtained by the improvement method according to claim 1.

47. Battery separators containing improved polymeric materials obtained by the improvement method according to claim 1.

48. Wiping/cleansing materials containing improved polymeric materials obtained by the improvement method according to claim 1.

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49. Filter mediums containing improved polymeric materials obtained by the improvement method according to claim 1.

50. Water absorption materials containing improved polymeric materials obtained by the improvement method according to claim 1.

51. Water retention materials containing improved polymeric materials obtained by the improvement method according to claim 1.

52. Materials for microorganism culture media containing improved polymeric materials obtained by the improvement method according to claim 1.

53. Composite materials containing improved polymeric materials obtained by the improvement method according to claim 1.

54. Members of writing materials containing improved polymeric materials obtained by the improvement method according to claim 1.

55. Polymeric materials improved in adhesion property obtained by the improvement method according to claim 1.

56. Medical/sanitary/cosmetic supplies containing improved polymeric materials obtained by the improvement method according to claim 1.

57. Synthetic papers made of improved polymeric materials obtained by the improvement method according to claim 1.

58. Brackets for straightening of irregular teeth containing improved polymeric materials obtained by the improvement method according to claim 1.

59. Textile products for clothing or inner battings of beds/bed clothing containing improved polymeric materials obtained by the improvement method according to claim 1.

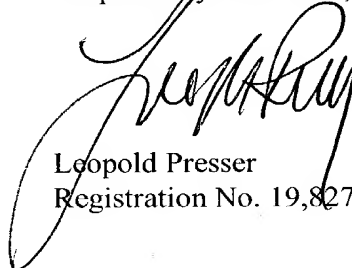
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**REMARKS**

As originally prepared, Claims 1-27 did not comply with the multiple dependent claim style specified by U.S. law. The amendments submitted herewith have been made to delete all multiple dependencies. In so doing, no new subject matter has been introduced.

It is respectfully requested that the above amendments be entered before an action on the merits is issued.

Respectfully submitted,



Leopold Presser  
Registration No. 19,827

SCULLY, SCOTT, MURPHY & PRESSER  
400 Garden City Plaza  
Garden City, New York 11530  
(516) 742-4343

EWG/vjs